ATOP-R&D

Human Factors Newsletter # 05-20

October 16, 2005 – October 29, 2005

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FAA Executive Vacancy Announcement – Program Director for Human Factors: The FAA is seeking applications for its Program Director for Human Factors position. The Program Director for Human Factors is responsible for leading the agency-wide human factors program. The incumbent provides executive direction and leadership as well as executive level advice and guidance in all human factors research and development programs for the FAA. The incumbent reports directly to the Director, Operations Planning, Research and Development on systems acquisition issues and human factors research. Areas include: human computer interface for air traffic control, controller aircrew interface, aircrew performance, cockpit resource management, flight training, maintenance training and procedures, medical certification of airmen, and procedures for security personnel. Applications must be received by November 29, 2005. *NOTE***:** *This is a re-advertisement of Vacancy Announcement # AWA-ATO-2005-1-10192. Applicants who applied for Vacancy Announcement # AWA-ATO-2005-1-10192 need not reapply.* For more information, point to http://www.faa.gov/ahr/career/10207.htm or contact Rebecca Korelec, 202-267-3084 or TTY number (202) 366-7630. Rebecca.Korelec@faa.gov

Award: On November 1, 2005, Ulf Ahlstrom received the second place technical writing award at the annual meeting of the Air Traffic Controllers Association which begins on October 30, 2005. His paper, titled "Advanced Weather Displays for TRACON Controllers" was published in the April-June 2005 issue of the Journal of Air Traffic Control.

- Abstract. Advanced weather information at select Terminal Radar Approach Control (TRACON) facilities is only available to traffic management and supervisors for strategic use. TRACON controllers do not have direct access to these weather products. Controllers maintain their Weather Situation Awareness by receiving weather briefings from the supervisor and by viewing precipitation levels on their workstation. The present paper provides a summary of findings from a study where researchers systematically investigated advanced weather tools and their impact on *tactical* operations in the TRACON domain. Our results showed a large impact of advanced weather information on controller efficiency, with increases in sector throughput (completed flights) of 6% to 10%. By providing enhanced weather information at the workstation, we were able to enhance controllers' ability to detect approaching weather, monitor its movement, and understand its effect on future operations. This increased controllers' efficiency for the timing of arrivals, for vectoring, for the adjustment of flow and sequencing, and for runway selection.

  This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.

  Point of Contact: E. Stein, WJHTC

Awards: On November 1, 2005, FAA researcher Dr. John Hansman received the Air Traffic Control Association's (ATCA) George W. Kriske Memorial Award for outstanding career achievements that have added to the quality, safety or efficiency of air traffic control. FAA contractor Hi-Tech Systems received ATCA's Small and Disadvantaged Business Award for outstanding achievement or contribution which had added to the quality, safety or efficiency of air traffic control. Congratulations to both recipients.

Point of Contact: P. Krois, ATO-P R&D

En Route Automation Modernization (ERAM): William J. Hughes Technical Center personnel continued the analysis of HOST and Display System Replacement (DSR) files, now including the User Request Evaluation Tool (URET). They created a database containing all controller HOST, DSR, and URET entries from field data. They also began work on the next phase of the project, to analyze critical interactions, and met with a subject matter expert (SME) to review the form that will be used to gather additional information from other SMEs. The purpose of this effort is to identify usable metrics for the early evaluation of ERAMS once it is introduced. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (K. Allendoefer, WJHTC)

Air Traffic Control: On October 18-20, 2005, the European Commission held a Safety R&D Workshop as a forum for safety and human factors experts to promote better coordination and collaboration on key air traffic control safety and R&D issues. The FAA Safety R&D program

was presented by Dino Piccione (ATO-P R&D). The Workshop included a series of presentations on safety survey findings and overviews of the state-of-the-art in safety R&D in Europe. Representatives from several European Air Navigation Service Providers presented their views on research needs. The safety departments at EUROCONTROL and several universities provided views of activities within their respective organizations. Clinics and workshop sessions were also held to help identify safety research needs and priorities. *This research activity supports the Administrator's Flight Plan Goal for International Leadership, Objective 1: Promote improved safety and regulatory oversight.*
 (D. Piccione, ATO-P R&D)

Weather Information Display System (WIDS): William J. Hughes Technical Center personnel are preparing a technical report summarizing more traditional eye-tracking metrics (e.g., fixation duration, scan paths, fixation locations on areas of interest) from WIDS study data. They are also working on a paper detailing eye-tracking metrics. Both documents will be completed this fall. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objective 7: Enhance the safety of FAA's air traffic systems*. (U. Ahlstrom, WJHTC)

Electronic Aeronautical Charting Working Group Meeting: On October 17-19, 2005, the Volpe Center hosted a meeting of the Society of Automotive Engineers (SAE) G-10 Committee on Aerospace Behavioral Engineering Technology, Aeronautical Charting Subcommittee. This working group is updating an industry recommended practices document on symbols for electronic displays of aeronautical information. During the meeting, Volpe researchers Divya Chandra and Michelle Yeh discussed plans for research to be conducted under Volpe's Flight Symbology program. This research addresses the usability and comprehension of symbols that represent aeronautical navigation information on electronic displays. The Aeronautical Charting Subcommittee is especially interested in this research because of its potential implications for their symbology recommendations. At the meeting, subcommittee members provided the Volpe researchers a symbol set for study. Approximately 10 participants from industry and the FAA attended the meeting. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objectives 1and 2: Reduce the commercial fatal accident rate; Reduce the number of fatal accidents in general aviation.* (D. Chandra, M. Yeh, VNTSC)

Optimal Design of Event Lists (ODELs) in Technical Operations - Phase 2: William J. Hughes Technical Center personnel with the NAS Human Factors group are completing data collection on the second phase of the ODELs study. As the name suggests, ODELs looks at how to optimize the design of lists. Many different systems present information in the form of lists to Technical Operations Specialists. However, there is no standardization on how this information is presented. Researchers have been asked to look at list format and determine whether the list format has an impact on the user's ability to find information. If this is the case, they will determine which format leads to the best performance. In the second phase of the study, researchers will measure response time and accuracy for lists of different length to determine how length impacts search time and accuracy. Optimized event lists should minimize search time and maximize accuracy. The study uses an oculometer to collect eye-tracking data. The researchers will use eye-tracking components such as dwell time, search path, and backtracking, to determine how list characteristics impact visual search. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objective 7: Enhance the safety of FAA's air traffic systems.* (V. Ahlstrom, WJHTC)

Communication of National Airspace System (NAS) Status Information between Technical Operations and Air Traffic Control: In November 2005, personnel from the William J. Hughes Technical Center's NAS Human Factors Group will begin data collection at field sites as part of a study of communications between Technical Operations Specialists and Air Traffic Control Specialists. Researchers will visit a limited number of Technical Operations and Air Traffic field site locations and conduct structured interviews. This study seeks to identify the redundant communication of NAS status. The potential benefit of this study will be more efficient communication and coordination between Technical Operations and Air Traffic, and a reduction of unnecessary workload. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objective 7: Enhance the safety of FAA's air traffic systems.* (Vicki Ahlstrom, WJHTC)

National Traffic Management Log (NTML): NTML was developed to provide a single system for automated logging, coordination, and dissemination of traffic management initiatives throughout the National Airspace System. Research psychologists with the William J. Hughes Technical Center's NAS Human Factors Group are providing support during testing of the NTML. This is the third and final opportunity for users from the field to exercise Version 3.06 of the system. The researchers will review the status of issues identified during the earlier test activities and ensure that the recommended solutions were implemented effectively. In addition, they will document any new usability or design concerns. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (T.Yuditsky, WJHTC)

Aviation Maintenance: On October 17-21, 2005, Dr. Carla Hackworth traveled to the Netherlands to meet with Vangelis Demosthenous (Joint Aviation Authority - JAA) and members of the European Human Factors Steering Group to discuss the International Airline Maintenance Survey. The purpose of the survey is to assess what airline maintenance companies have done, are doing or are planning to do regarding the human factors elements of Part 145 (Repair Stations). The survey has 60 items that address human factors practices, human factors training, human error management and documentation, and issues related to quality assurance within airline maintenance. The Civil Aerospace Medical Institute will coordinate a collaborative survey of airline maintenance human factors specialists with the European Aviation Safety Agency, JAA, and the FAA. A small survey of US maintenance organizations was conducted in 2002, as part of the Commercial Airplane Certification Process Study for Human Factors. This new proposed survey will provide an international comparison of the state of human factors in the industry when compared with the more limited results found in 2002. The meeting attendees reviewed the current airline maintenance survey and identified European recipients of the survey. Dr. Hackworth attended the maintenance focus group session to better understand the issues and concerns of the European Maintenance Focus group. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objectives 1 and 2: Reduce the commercial fatal accident rate; Reduce the number of fatal accidents in general aviation.*

Technical Information: The Human Factors Reports Database has over 1400 articles from 29 different sources, including the William J. Hughes Technical Center, CAMI, NASA and EUROCONTROL. There are also articles from research conducted at several universities. To

access the reports, point to: www.hf.faa.gov/Workbench/search.aspx. The database is updated regularly, and we will keep you informed about the latest articles. Each month we will list articles that have been added to the database. Here is a list of recent additions:

Bonaceto, C.; Estes, S.; Moertl, P.; Burns, K. (2005). Naturalistic Decision Making in the Air Traffic Control Tower-Combining Approaches to Support Changes in Procedures. Mitre Technical Report. http://www.hf.faa.gov/Workbench/techrptdetails.aspx?id=1657

Gosling, G.D. (2002). Analysis of factors affecting the occurrence and severity of air traffic control operational errors. http://www.hf.faa.gov/Workbench/techrptdetails.aspx?id=1655

Jones, S.G., & Tesmer, B. (1999). A new tool for investigating and tracking human factors issues in incidents. In *Proceedings of the Tenth International Symposium on Aviation Psychology* (pp. 696-701). Columbus, OH: The Ohio State University. http://www.hf.faa.gov/Workbench/techrptdetails.aspx?id=1653

Mitchell Gibbons, A., von Thaden, T.L. & Wiegmann, D.A. (2004). Exploration of the correlation structure of a survey for evaluating airline safety culture. Technical Report AHFD-04-06/FAA-04-3. http://www.hf.faa.gov/Workbench/techrptdetails.aspx?id=1656

Walker, M (2004). Analysis for Enabling Benefits at User Request Evaluation Tool (URET) Field Sites. Mitre Technical Report, MTR 04W0000082. http://www.hf.faa.gov/Workbench/techrptdetails.aspx?id=1654

This research activity supports the Administrator's Flight Plan Goal for Organizational Excellence, Objective 3: Make decisions based on reliable data to improve our overall performance and customer satisfaction.

Point of Contact: D. Piccione, ATO-P R&D

***More information on human factors research can be found at
the FAA Human Factors (ATOP-R&D) web site***: http://www.hf.faa.gov

Paul Krois
FAA (ATO-P R&D Human Factors)

 CALENDAR

October 30-November 7, 2005 – ATCA 50th Annual Conference and Exposition, Dallas, TX http://www.atca.org/event_items.asp.

October 30—November 3, 2005 – 24th Digital Avionics Systems Conference, Hyatt Regency Crystal City, Wash., DC http://www.dasconline.org

November, 2005 – DoD TAG (Human Factors Engineering Technical Advisory Group) Meeting, Baltimore, MD http://hfetag.dtic.mil/meetschl.html

November 3-5, 2005 - AOPA Expo, Tampa, Florida www.aopa.org

November 3-5, 2005 - Conference on Designing for User Experience, Fort Mason, San Francisco, CA http://www.dux2005.org/

November 6-9, 2005 - ACI World / Pacific Conference and Exhibition, Auckland, New Zealand. www.auckland-airport.co.nz

November 7-9, 2005 – DoD TAG, Baltimore, MD http://hfetag.dtic.mil/meetschl.html

November 7-10, 2005 – Flight Safety Foundation 58th Annual International Air Safety Seminar, Moscow, Russia http://www.flightsafety.org/iass05_cfp.html

November 7-10, 2005 - Ergonomics and Human Factors: Applications in Occupational Safety and Health, Harvard School of Public Health, Cambridge, MA http://www.hsph.harvard.edu/ccpe/programs/EHF.shtml

November 8-10, 2005 – Aerospace Testing Expo, North America: Scientific Conference and Technology Forum, Long Beach Convention Center, Long Beach, CA http://www.aerospacetesting-expo.com/northamerica/conf+forum.html

November 8-10, 2005 – Maintenance, Repair & Overhaul Exhibition Asia, Suntec Convention Center, Singapore http://www.aviationnow.com/conferences/masmain.htm

November 10, 2005 - 34th Annual Meeting of the Society for Computers in Psychology, Toronto, Ontario, Canada http://www.scip.ws

November 10 - 13, 2005 - 46th Psychonomic Society Annual Meeting, Toronto, Ontario, Canada http://www.psychonomic.org/meet.htm

November 15-17, 2005 - National Business Aviation Association's 58th Annual Meeting & Convention, New Orleans, LA (TBD) www.nbaa.org

November 16-17, 2005 – IEE Human Factors Engineering Professional Network/MoD Human Factors Integration Defense Technology Center "People and Systems Symposium: Who Are We Designing For?", Grange City Hotel London, UK http://conferences.iee.org/pas2005

November 17-19, 2005 – HCIS Symposium, Greenbelt, MD
http://gandalf.ncat.edu/ihms/CenterHumanCentric

November 28-29, 2005 – Joint FAA/Association of Asia Pacific Airlines Workshop on Human Factors in Engineering and Maintenance, Prince Hotel, Kuala Lumpur
http://www.aapairlines.org/content/events/HumanFactorWS/HF2005_Flyer.pdf

November 28-30, 2005 – European Aviation Conference, Nice, France
http://www.everestevents.co.uk/events.asp?eventID=39

November 29 – December 1, 2005 – FAA New Technologies Workshop, Sheraton National Hotel, Arlington, VA   http://www.cmpmeetings.com/faaafs , csmith@cmpmeetings.com

December 6-8, 2005 – US Air Force T&E Days, Gaylord Opryland Hotel, Nashville, TN
http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=1297

December 6-8, 2005 – NASA Sixth Annual Risk Management Conference, Disney Coronado Resort, Orlando, FL http://rmc.nasa.gov/

January 9-12, 2006 - 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno Hilton, Reno, NV http://www.aiaa.org/

January 21-25, 2006 – ASHRAE Winter Meeting and Expo, Chicago, IL
http://www.ashrae.org/template/AssetDetail/assetid/45794

January 22-26, 2006 – TRB 85th Annual Meeting, Washington, DC http://trb.org/calendar/

January 23-27, 2005 - S-18 Safety Assessment for Airborne Systems & Equipment
San Antonio, TX, lemon@sae.org

February 9-10, 2006 - Swinburne University Symposium on Safety Management and Human Factors Symposium, Melbourne, Australia janca@groupwise.swin.edu.au
http://www.swin.edu.au/aviation/forms/2006SwinburneSymposiumCallforPapers.pdf

February 21-26, 2006 – Asian Aerospace 2006, Changi Exhibition Centre, Singapore
www.asianaerospace.com

February 26-28, 2006 – Heli-Expo, Dallas, TX http://www.heliexpo.com

February 28 – March 1, 2006 – 31st Annual FAA Aviation Forecast Conference, Wash, DC
http://www.faa.gov/news/conferences/aviation_forecast_2006/.

March 12-14, 2006 – AirCargo 2006, Sheraton Bal Harbour, FL
http://www.aircargoconference.com

March 13-15, 2006 – Flight Safety Foundation 18th Annual European Aviation Safety Seminar, Athens, Greece http://www.flightsafety.org/seminars.html#eass

March 20-23, 2006 – 16th Annual AAMI/FDA International Conference on Medical Device Standards and Regulation, Hyatt Regency, Reston, VA
http://www.aami.org/meetings/isc/index.html

March 22 - 25, 2006 - Society for Behavioral Medicine Annual Meeting and Scientific Sessions, San Francisco, CA   www.sbm.org/annualmeeting/index.html

March 23-25, 2006 - 17th Annual International Women in Aviation Conference, Opryland Hotel Nashville, TN http://www.wai.org/

March 23-27, 2005 – IA Summit 2006, Hyatt Regency, Vancouver, BC, Canada
http://www.iasummit.org/

March 28-30, 2006 – Aviation Industry Expo, Las Vegas, NV
http://www.aviationindustryexpo.com

April 4-10, 2006 – Sun 'n Fun, Lakeland, FL http://www.sun-n-fun.org/content/

April 6-7, 2006 – National Human Capital Summit, Chicago Marriott Downtown, Chicago, IL
http://www.humancapitalinstitute.net/conference_national.html

April 22-27, 2006 – CHI 2006, Montreal, Quebec, Canada
http://www.chi2006.org/call/hcioverviews.php

April 23-28, 2006 - Avionics Systems Division Meeting, New Orleans, LA (TBD)
lemon@sae.org

April 25-27, 2006 – Maintenance, Repair & Overhaul (MRO) Conference & Exhibition, Phoenix Civic Plaza, Phoenix, AZ http://www.aviationnow.com/conferences/mromain.htm

May 1-4, 2006 - 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference; 14th AIAA/ASME/AHS Adaptive Structures Conference;
7th AIAA Gossamer Spacecraft Forum; 2nd AIAA Multidisciplinary Design Optimization Specialist Conference; 1st AIAA Non-Deterministic Approaches Conference, Hyatt Regency Newport, Newport, RI *http://www.aiaa.org/*

May 9-11, 2006 – Flight Safety Foundation 51st Annual Corporate Aviation Safety Seminar, Phoenix, AZ http://www.flightsafety.org/seminars.html#eass

May 14-18, 2006 - 77th Annual Scientific Meeting of the Aerospace Medical Association, Caribe Royale Hotel, Orlando, FL   http://www.asma.org/

May 15-16, 2006 – DoD TAG, Las Vegas, NV http://hfetag.dtic.mil/meetschl.html

May 17-19, 2006 – 17th International Conference on Heating and Ventilation, Prague, Czech Republic   http://www.acv2006.cz

May 22-24, 2006 - 9th IFAC Symposium on Automated Systems Based on Human Skill And Knowledge, Nancy, France http://www.cdc.gov/niosh/exhibits.html

May 25-28, 2006 – American Psychological Society 18th Annual Convention, New York Marriott Marquis, New York City, NY http://www.psychologicalscience.org/convention/

June 11-14, 2006 – The American Society of Safety Engineers Safety 2006 Conference, Washington State Convention and Trade Center, Seattle, WA http://www.asse.org/2006pdcallforpapers.pdf

June 12-16, 2006 – UPA 2006 – 15th Annual Conference, Broomfield, CO http://www.usabilityprofessionals.org/conferences_and_events/upa_conference/2006/

June 24-26, 2006 – AAMI Conference & Exposition, Wash, DC http://www.aami.org/proposals/index.html

June 24-28, 2006 – ASHRAE Annual Conference, Quebec, Canada http://www.ashrae.org/

June 26-29, 2006 - General Aviation Technology Conference , Hyatt Hotel, Wichita, Kansas,

July, 2006 - 26th International Congress of Applied Psychology, Athens, Greece dgeorgas@dp.uoa.gr , http://www.erasmus.gr/dynamic/conventions.asp?conv_id=21r/dynamic/conventions.asp?conv_id=21

July 10-14, 2006 – IEA 2006, 16th World Congress on Ergonomics, Maastricht, The Netherlands http://www.iea2006.org/

July 24-30, 2006 – EAA AirVenture, Oshkosh, WI http://www.airventure.org/

August 10-13, 2006 – American Psychological Association Annual Meeting, New Orleans, LA http://www.apa.org/convention05/future.html

August 21-24, 2006 - AIAA Modeling and Simulation Technologies Conference and Exhibit. Keystone Resort and Conference Center, Keystone, CO http://www.aiaa.org/content.cfm?pageid=1

August 21-24, 2006 - AIAA Guidance, Navigation, and Control Conference and Exhibit, Keystone Resort and Conference Center, Keystone, CO http://www.aiaa.org/content.cfm?pageid=1

September 6-8, 2006 - 11th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Renaissance Portsmouth, Portsmouth, VA, http://www.aiaa.org/content.cfm?pageid=1

September 10-14, 2006 - 54th International Congress of Aviation and Space Medicine, Bangalore, India. A preliminary registration form may be found at http://www.isam-india.org/conference44/newreg.php.

September 20-22, 2006 – HCI-Aero 2006, Seattle, WA http://www.eurisco.org/hci-aero2006
Note: Submission Deadlines:
15th March 2006 - Full Research Papers
15 April 2006 - Industry Papers
15 April 2006 - Early Stage Research Papers
15 April 2006 - Panels, Workshops
15 April 2006 - Posters and Demos

September 26-27, 2006 – AIAA Aviation Technology, Integration and Operations Conference, Hyatt Regency, Wichita, KS http://www.aiaa.org/content.cfm?pageid=1

October 15-19-2006 – Digital Avionics Systems Conference, Hilton Portland, Portland, OR http://www.dasconline.org/

September 25-27, 2006 - 6th AIAA Aviation Technology, Integration and Operations Forum, Hyatt Regency Wichita, Wichita, KS http://www.aiaa.org/content.cfm?pageid=1

October 23-25, 2006 – 44th Annual SAFE Symposium, Reno Hilton Hotel, Reno, NV http://www.safeassociation.org/symposium.htm

October 23-26, 2006 - DoD Maintenance Symposium & Exhibition, Reno Hilton, Reno, Nevada http://www.sae.org/events/conferences/aerospace/

January 8-11, 2007 - 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno Hilton, Reno, NV http://www.aiaa.org/content.cfm?pageid=1

July 22-27, 2007 – 12th HCI International, Beijing, China http://www.hcii2007.org/

Note: Calendar events in Italics are new since the last Newsletter

Comments or questions regarding this newsletter?
Please contact Bill Berger at (334) 271-2928
or via e-mail at bill.ctr.berger @faa.gov